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Panelists

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SHEEHAN: I am Linda Sheehan, the Executive Director of California Coastkeeper Alliance. California Coastkeeper Alliance is a statewide umbrella organization that represents individual Waterkeeper groups from Humboldt Bay down to San Diego. The local Waterkeeper group is called Baykeeper, and includes the San Francisco Chapter and the Deltakeeper Chapter.[1]

CORY: My name is David Cory. I am a farmer in the Central Valley and an attorney. I focus on water quality issues. I provide legal advice to the water districts in the Central Valley regarding the new water quality agricultural regulatory programs.

YOUNG: I am Terry Young. I am a consultant working with Environmental Defense.[2] I am not a lawyer. I am a scientist.

SHEEHAN: Because we are speaking to a large group of law students and non-law professionals, some of this discussion will be background information. I wanted to start by talking about the problem we are trying to fix. This panel focuses on waste discharge requirements placed on irrigated agricultural runoff. For many years, we didn't address this issue at all. I've been working in this area for well over a decade. When I started, polluted runoff was not the kind of thing anyone talked about. The legislature and even the environmental groups were silent on this issue. It was just not an issue that came up very often.

But recent scientific studies have raised awareness. It is now apparent that pesticides, herbicides, nutrients, sediment, and metals are components in agricultural runoff. Science is increasingly showing that it is a very significant problem. It's a nationwide problem, not just a

1. *See generally* California Coastkeeper Alliance, http://www.cacoastkeeper.org (last visited Apr. 29, 2006).

2. *See generally* Environmental Defense, http://www.environmentaldefense.org (last visited Apr. 29, 2006).

California problem. There is a dead zone in the mouth of the Mississippi in the Gulf Coast, that is now as large as the state of Connecticut, where nutrients coming from upstream farms have created no-oxygen conditions where nothing can live, especially during the summer months. That's one example of a problem associated with agricultural runoff.

In California, the local papers recently have been covering the collapse of the delta ecosystem.[3] The San Francisco Bay Delta Estuary drains over forty percent of the landmass in California and provides drinking water for two-thirds of Californians. It is extremely important to keep the delta ecosystem healthy.

Environmental Defense has been doing quite a bit of work on the CALFED Bay-Delta Program over the decade it's been in existence, and all of us have been paying into CALFED. CALFED is a state-federal entity that was created to help restore the health of the delta ecosystem.[4] Over three billion dollars have been spent in these ten years, and a lot of people feel that the delta is actually worse off right now than when we started. The governor commissioned the Little Hoover Commission to look into this and they came out with a report last fall that said that there are many reasons why the CALFED governing structure has failed to protect the delta.[5] One of the chief reasons was accountability for making hard decisions. If nobody is accountable for making hard decisions, then everybody just keeps doing what they were doing. The same accountability issues are apparent in the recent response to the problems caused by irrigated agricultural runoff. There really is no question that the delta is in collapse. Water supply, invasive species, and water quality issues are all in play when talking about the collapse of the delta.

Recent studies by University of California scientists reveal that certain delta bellwether species that are very sensitive to pollution, such as striped bass, suffer significant physical problems when exposed to your average delta water. In fact, another recent University of California study examined the synergistic effects of pesticides. It is surprising to me that more research has not been performed in this area. Individual pesticides have been tested individually. But when you combine them, the synergistic effects were far more significant than they had anticipated when they began the study. When they tested frogs, they found

3. *See* Bettina Boxall, *Smelt's Fate Worries Scientists*, L.A. TIMES, Apr. 17, 2006, at B1; Don Thompson, *Scientists Look into Delta's Ecological Collapse*, VENTURA COUNTY STAR, Oct. 23, 2005, at 8.

4. *See generally* CALFED Bay-Delta Program Home Page, http://calwater.ca.gov (last visited Apr. 29, 2006).

5. *See generally* Little Hoover Commission, http://www.lhc.ca.gov. For information about the Commission's review of the CALFED Bay-Delta Program, see LITTLE HOOVER COMMISSION, STILL IMPERILED, STILL IMPORTANT, THE LITTLE HOOVER COMMISSION'S REVIEW OF THE CALFED BAY-DELTA PROGRAM (2005), http://www.lhc.ca.gov/lhcdir/report183.html.

significant abnormalities and lack of resistance to disease when the frogs were exposed to the normal combination of pesticides that are in agricultural runoff, even when each of the pesticides individually was far below the level that would have triggered effects according to individual studies.

So, this is a problem. We're seeing the collapse of the delta and disappearance of delta smelt, which occupy the bottom of the food chain. There are a lot of problems associated with agricultural runoff. The problems are not just tree-hugging, fish-loving problems. They include problems with drinking water as well. Environmental justice communities got together last year and put out a report that talks about local communities' inability to get safe, clean, affordable, regular drinking water supplies.[6] Agricultural runoff is the main reason these communities can't get drinking water supplies. There are sections in the report that talk specifically about developing agricultural runoff controls and individual local community groups' lack of access.

California is fairly unique in how water law and policy is made. Because it is so large, it has been divided into nine regional water quality control boards that roughly represent the different water basins within California. The largest one is the Central Valley Regional Water Quality Control Board.[7] It encompasses much of the Central Valley. Its jurisdiction is quite large. In fact, the region itself is subdivided into smaller areas. Each of these regional water boards has the responsibility to develop and identify the beneficial uses for each water body. For example, a board will determine whether a body of water is appropriate for swimming, drinking, recreational use, aquatic life, etc. Once the uses are identified, state law requires that the board set water quality objectives to protect those uses. Also, federal law requires the water boards to identify the uses and promulgate standards to make sure the uses are being met. Each water quality board also creates a water quality control plan, or a basin plan that has the force of regulation for implementation.

The State Water Board doesn't get involved in the local decision making process unless somebody appeals a regional water board decision to the state water board through an administrative process. They can address an action or a failure to act by the regional water board. Whether the petition is heard depends on whether the state water board addresses the issue to which the petition pertains. The state water board also has jurisdiction over statewide basin plans, such as the Ocean Plan or the

6. THE ENVIRONMENTAL JUSTICE COALITION FOR WATER, THIRSTY FOR JUSTICE: A PEOPLE'S BLUEPRINT FOR CALIFORNIA WATER (2005), *available at* http://www.ejcw.org/our_work/blueprint.html.

7. *See generally*, Central Valley Regional Water Quality Control Board, http://www.waterboards.ca.gov/centralvalley (last visited Apr. 29, 2006).

Enclosed Bays and Estuaries Policy.[8] But, for the most part, decisions about local water quality are made within the regional water boards. Unlike California law, federal law—the Clean Water Act[9]— exempts irrigated agriculture from the regular permit-making process that city wastewater treatment plants must follow.[10] While mom-and-pop dry cleaners or junk yards—anyone who's discharging—has to comply with the Clean Water Act, irrigated agriculture is specifically exempt from the permit requirement.

Irrigated agriculture is not completely exempt from all aspects of the Clean Water Act. For example, as litigated in *Pronsolino v. Nastri*,[11] if the water body is so polluted that it needs to be listed under section 303(d) of the Clean Water Act,[12] there is no exemption for irrigated agricultural runoff. This does not necessarily mean that the discharging parties have to get a permit, it just means the water body has to be listed. That's where state law comes in. The Porter-Cologne Water Quality Control Act ("Porter-Cologne") governs water quality issues.[13] Porter-Cologne says that any discharge into waters of the state surface water, or groundwater, from any source, needs to be addressed in some way, to make sure that the beneficial uses that were identified by the regional control boards are protected.

Each individual regional water board identifies beneficial uses and sets water quality standards. An entity who has a discharge that could impact the beneficial uses or otherwise violate standards must notify the regional water board. The board may require the entity to address the discharges. The entity might get a Waste Discharge Requirement (WDR), which is like a permit. Alternatively, in the case of irrigated agricultural runoff, a farmer would historically receive a "waiver of waste discharge requirements with conditions." There is quite a debate about differences between that and a WDR.

Until the early 1980s, nothing was really done about irrigated agricultural runoff despite Porter-Cologne, which took effect in 1968. In the 1980s, the regional water boards realized that they forgot about this source of pollution and decided to write a waiver into their basin plans. The waivers didn't place many conditions on the dischargers. The only real condition was that the dischargers couldn't create conditions that were toxic to fish or wildlife. The waivers were approved in the early 1980s because there wasn't a lot of information or science on the

8. For a list of basin plans, see Water Board: Plans and Policies, http://www.waterboards.ca.gov/plnspols/index.html.

9. 33 U.S.C. §§ 1251–1387 (2000).

10. *Id.* § 1342(*l*)(1).

11. 291 F.3d 1123 (9th Cir. 2002).

12. 33 U.S.C. § 1313(d).

13. CAL. WATER CODE § 13000–14958 (West 2006).

problems associated with irrigated agricultural runoff. These waivers were in place for many years and, unlike National Pollution Discharge Elimination System[14] permits under the Clean Water Act, they were not subject to five-year review. The waivers were in effect until the late 1990s when Baykeeper sponsored legislation in Sacramento, SB 390,[15] that rescinded all of the waivers and required that they be replaced with waivers that meet the basin plan requirements to protect beneficial uses. SB 390 was extremely controversial. Nonetheless, Governor Gray Davis signed it. After SB 390 passed, Baykeeper and a number of other environmental groups petitioned the Central Valley Regional Water Board to do the same thing.

Advocates use the different legal tools that are available to them. Advocates change the law where necessary to protect beneficial uses and address large sources of pollution. They also use the petition and administrative processes, where possible. Using all of these tools at the same time can be extremely powerful when advocates try to create change to address real problems.

January 1, 2003 was the deadline for the old waivers to be rescinded and the new waivers to be adopted in their place. Various regions stepped up to the plate at various levels. The Central Coast, for example, didn't get their waiver in on time. About 5000 fairly small farms and some high-profit farms operate there. But they were working quite hard on it. All of the groups involved allowed them to work a bit longer because they were trying to get something solid down.

On the other hand, the Central Valley Regional Water Board, a much larger board with a lot more contention and history, did adopt something in December, just before the deadline. However, the waiver was not adequate. The Board had to review it again in April. Finally, in July 2003, they again adopted an inadequate waiver. The conditions required to obtain a Central Valley waiver were not as functional as those of the Central Coast waiver. The Central Coast's conditions were more straightforward and easier to administer and enforce.

In July I attended a hearing in Sacramento where the final waiver was adopted for the Central Valley. A number of folks were bussed in from local communities. The environmental justice groups got some folks together and they took a day off work. I was disappointed to see that the Water Board, by mismanaging the hearing, prevented these folks from speaking. They took a day off work, rode a bus in, and sat there all day. Then the Water Board said they couldn't finish the public comments until the next day. These people had already taken one day off and that was all they could take. They weren't able to come the next day. This

14. *See* 33 U.S.C. § 1342.

15. 1999 Cal. Legis. Serv. 4029 (West).

highlights the importance of the process being open to all citizens. Citizens need to be involved. But society needs to make the administrative process available to the citizens so that they can actually do what they need and want to do. Citizens want to speak their piece about their local water because they are impacted by the Board's actions. Pesticides are ubiquitous. Numerous studies have shown that pesticides show up in our drinking water. Other studies found pesticides affecting the nervous system in rainfall. So people need to speak. This hearing was a big disappointment to me because people took the time to come in and were not able to speak.

Different discharge conditions have been enacted by different regional water boards. By far, Central Coast is ahead of the curve. It took this far more seriously than a lot of other areas and really tried to do the right thing. Unlike those in the Central Valley, individual farmers in the Central Coast must sign up, issue notice of intent, provide their name and address, and commit to compliance. Almost fifty percent signed up right away. The Central Coast hopes to get eighty percent of farmers to sign up by the end of the first year. The Board is close to meeting this goal. Farmers must also take certain classes, implement best-management practices, and monitor their discharge. Central Coast is pretty far ahead of the curve.

AUDIENCE MEMBER: Do you think there's just more pressure on them because they have the Monterey Bay?

SHEEHAN: Yes, the Central Coast does have jurisdiction over the great majority of the Monterey Bay Sanctuary. But actually the Monterey Bay Sanctuary wasn't pressuring them. In 1994 and 1995 the Sanctuary started to address different sources of pollution and to collaborate by bringing people in and talking with them about these issues. So, they had been talking about irrigated agricultural runoff long before the law was put into place. The relationships had been built, so it was already on the table.

CORY: I think that's a key point. Compare the progress of the Central Coast to the Central Valley in terms of organizational structure and educating growers. In the Central Coast there are fewer growers, in a much smaller area, and they are more sophisticated growers in terms of high revenues. The dynamics of the individual growers on the Central Coast differ greatly from those in the Central Valley.

AUDIENCE MEMBER: This may be a very simplistic view, but two tools you haven't yet mentioned are the state's non-degredation policy and the public nuisance code. Anybody can use these. Why aren't your groups or water boards using these tools in combination to tell the farmers that they just can't do this? You've created a public nuisance or you've violated a non-degradation policy and you're going to either, one, stop,

or two, clean it up. Is it the discharge requirement waivers that allow them to do this?

SHEEHAN: The question was: why don't we use other tools such as the anti-degradation policy, which is Resolution 68-16,[16] or public nuisance provisions that have been available for many years. My experience with the anti-degradation policy is that it does get raised. In fact, it has been raised by our groups. It just tends to be a box that gets checked off by the regulatory agencies so they can say they did it. It is the same thing with nuisance cases. You would win, but you still need to implement the law. If you win the case, you can't just go home thinking everything is fixed. You still need to go find the money; you still need to go find the people to make sure that the decision will be enforced; you still need to set up the structures for the monitoring. There's still a lot more work to be done. A lot of what the Waterkeepers do is litigation. In particular, I work on what happens after you win—making sure that the organization can tap the money, people, and political will to translate the courtroom success into on-the-ground improvements.

AUDIENCE MEMBER: I think the political will is probably the biggest problem.

SHEEHAN: Absolutely.

YOUNG: From my perspective, we have every legal tool we could ever need in the State of California to deal with these problems. Availability of tools is not the issue. The issue is that most of the people who are in the regulatory community and most of the people who are in the agricultural community think that it's totally impractical to regulate agriculture. That's where the thing stops. We can win a lawsuit. But then what do we do? Then how do we actually get results on the ground?

CORY: In practice, agriculture was effectively exempt from federal and state water quality regulations. My grandfather started farming in the Central Valley over sixty years ago. His son and aunt started farming as well. They've done the same thing for generations. Growers have a particular perspective on life. Most of them run tractors and till the earth. Growing crops is what they do. They've never been asked to deal with water quality issues. The first time anyone ever asked them to do anything about it was when the waivers expired back in 2003. It takes a long time to educate a group of people who have a culture and a perspective on life that's very different from that of the average citizen of San Francisco.

Until we change the perspective and the culture so that farmers understand they have to farm with water quality issues in mind, we're not

16. STATE WATER RESOURCES CONTROL BOARD, RESOLUTION NO. 68-16: STATEMENT OF POLICY WITH RESPECT TO MAINTAINING HIGH QUALITY OF WATERS IN CALIFORNIA (1968), *available at* http://www.swrcb.ca.gov/ plnspols/docs/wqplans/res68-16.pdf.

going to get results. You can win lawsuits. But we have to change the practices on the ground and change the thinking of these growers. That's a long process. The point-source problem is very complex. There are a lot of different constituents and users of water. One farmer might pick up another farmer's water and use it on their ground. Then, it goes into another drain and it gets picked up and used by a third farmer, who adds different constituents. At the same time, you get rainfall, you get runoff from these grounds into the waterway. All of this commingles. You can't just shut off a tap to prevent these constituents from coming out. We're not just talking about pesticides. We're talking about nutrients and sediments and salts and a whole myriad of different issues we're dealing with. It's a complex problem. But the Clean Water Act did not solve overnight simpler point-source problems. After the Clean Water Act passed, industry in the country did not immediately comply with it. There was an educational process. Some of the growers' frustration stems from the environmental community's imposition of fully evolved programs, like the Clean Water Act and National Pollution Discharge Elimination System[17] permits, without a transitional period. Environmentalists are trying to fit those programs into this culture and industry. The growers haven't had the time to adapt to or learn what is expected of them. Whether you win or lose the lawsuit, it's going to take time to change this culture. We need to understand those limitations and work within that. You may not like it, but that's the reality of it. It's not going to happen overnight.

AUDIENCE MEMBER: Would you talk about factory farms, which are consolidating and growing in the Valley? They're doing it with very intentional purposes. It's not as if there were generations of farmers down there that are suddenly being asked to change their way of doing business. Instead, they're consolidating giant factory farms in the Central Valley and they have a huge rack of lobbyists clearing the path for them. It isn't like your grandpa, or your aunt, or somebody just waking up to this regulatory condition. I think there's a distinction between growers who are producing massive amounts of nutrients in factory farms and polluting streams and groundwater and those who have been growing food and fiber for forty years.

CORY: Actually, I don't see the distinction. There are growers on the west side who have been there for decades. I don't know what constitutes a factory farm. I don't see factories out there. I understand that corporations are taking over farms and putting small growers out of business. I think some of these water quality issues and regulatory problems are feeding that. Growers like my grandfather won't deal with these water quality regulations. It's beyond his world. He wants to go

17. 33 U.S.C. §§ 1251–1387 (2006).

out, grow his crops, till his soil, and be done with it. I started on the farm and realized we had some issues in terms of selenium that needed to be addressed. So I went to law school to get an understanding of these water quality issues. I know that the corporate farm and the factory farm make good press, but that is really not what's going on here. The vast majority are dirt farmers who need educating. Of course, you still need to educate what you might call the factory farms as well.

YOUNG: There is a wide spectrum of different kinds of farmers out there. I think the perception of what the farming community consists of is going to drive the politics of where we go from here.

SHEEHAN: To get us back on track, I want to summarize the tools that have been used to date, and then talk about what's coming up. So where are we right now? The irrigated agricultural runoff waiver that was passed in July 2003 by the Central Valley Regional Water Board was up for review again last fall. It was supposed to be short term, then reviewed again, and adopted with new conditions. They have deferred the decision until the summer. There will be a lot more going on when that new waiver is adopted. The Central Valley Regional Water Board's website will have updates about what's going on.

One legal tool involved is the implementation of current law, which is something discussed in law school. I think what is really going to be the day of reckoning for irrigated agricultural runoff, more than anti-degradation, is section 303(d) of the Clean Water Act.[18] That section sets up total maximum daily loads for waters polluted with irrigated agricultural runoff and other contaminants.

We're currently in the process of approving the 2006 list of impaired waters for the State of California. Many waters, over 600 miles of waterways within the Central Valley at least, are impaired in large part because of irrigated agricultural runoff pollution. At some point we've got to clean that up. It's not going away. The governor has talked a lot recently about improving our highways, prisons, and infrastructure. But water is in our ecosystem. It is our natural infrastructure. It is also decaying. We must attend to it. As the list of impaired waters indicates, the situation is getting worse. Although we need time to educate people, the collapse of the delta indicates that we don't have any time. So we need to come up with something fairly quickly. Different legal and environmental issues are forcing us to a decision more quickly than might be comfortable.

The administrative process is another available legal tool. Again, this process must be available and accessible to all members of the public. The current list of impaired water bodies highlights one problem.

18. *Id.* § 1313(d).

According to a guidance document adopted by the State Water Board, the regional water boards were supposed to have hearings on lists of impaired waters. They never did. Again, local people were cut out of the process. That's just wrong. The people need to be involved. Farmers, local residents who drink the water, and others need to be involved in the process.

Litigation has been an increasingly important tool to implement the law. But, you can't just stop once you win. Lobbying has been very important, and may make changes in the law. Lobbying associated with the state budget is really important. A lot people forget about the budget, but it's actually a bill, and, of course, once passed, it becomes a statute. Often, it comes with trailer bills that explain pieces of the statute. One important budget trailer bill, AB 10X,[19] took off the ceiling on fees to fund water quality programs in the state. Then, a follow-up bill, SB 923,[20] said that the water boards have the authority to issue fees to people who discharge polluted runoff as opposed to just point-source pollution. That's important because, without those fees, the state cannot afford the staff to do the necessary outreach and education. In the last fiscal year, we estimated that nearly sixty to seventy people are needed statewide. However, only twenty-two people statewide are available under the current budget for outreach, enforcement, education, and other needs. That amounts to less than two people for 5000 Central Coast farms. Because we don't have the reporting requirements in the Central Valley, which are supposed to pay the bulk of the fees, we're only going to collect twenty percent of the money we need. For this reason, they were looking at staff cuts last fall. When that became evident, the outcry was so significant in the legislature that they backtracked and said they would take it out of the Waste Discharge Permit Fund, which is money paid by point-source dischargers.

Some groups didn't even register to pay the fees, let alone pay them. Only half of the groups that were notified even bothered to pay. Of the ones who responded, they paid less than half the fees. We can't operate without money. Everybody else pays fees. Large farms pay less than small dry cleaners who have to pay under the storm water permit. Money is essential and science is extremely important. Without the information about what pesticides do, there's not going to be the political will to make the necessary changes.

AUDIENCE MEMBER: Why is there such a problem collecting fees?

SHEEHAN: We don't know who has paid and who hasn't. So they can't go after the people who haven't paid. In the Central Coast, people report individually. The people in the Central Valley report through

19. 2003 Cal. Legis. Serv. 1 (West).

20. 2003 Cal. Legis. Serv. 4653 (West).

coalitions who hold on to the membership list. Generally, the groups of farmers are not turning over the lists of people who are enrolled. There's a fight going on in the Central Valley over providing these lists of names.

CORY: There's a lot of issues in terms of coalition groups. There are different ways you can apply the current waiver or conditional waiver in the Central Valley. I think having coalition groups, which are large watershed groups that represent the growers, is the best way to deal with these water quality issues. In our group on the west side, I think we are very proactive in coming up with a good monitoring program. We pay for the entire area within our coalition. We paid the fee and paid it up front, and I worked with Linda on SB 923 trying to craft something that would work.

YOUNG: I think Linda very aptly described the problem that the environment has with agricultural pollution. It's a very serious problem. California has enormous legal authority to do something about this. So my question as an on-the-ground practitioner was: Why is nothing happening? Why can't we do anything in California, when we have the legal authority? Why can't we talk to people who are reauthorizing the Clean Water Act about doing something about agriculture without getting laughed out of the room?

I concluded that we're at a stalemate because nobody can figure a practical way to regulate agriculture. Conventional wisdom says that agriculture really just doesn't fit into the regulatory scheme that we've got. First of all, farm pollution can't be measured. That's the very definition of nonpoint source. It's sort of out there, somewhere, amorphously. You can't get a handle on it. You can't measure it. You can't monitor it. Maybe you can't even control it. Second, we've got thousands of individual sources up here. The perceived enormity of the task of regulation stops people in their tracks. Third, each source, each farm, is unique. So, you really need to tailor your pollution control program to the conditions on each farm if you're going to be efficient. David's ground is different from his neighbor's. If we try to impose Best Management Practices (BMPs) that apply all across the Central Valley, it's just not going to work. It will be practical for some, and totally impractical for others. I'm sure there are other reasons. But the reason we've made so little progress in terms of regulating irrigated agriculture is a practical problem. It all comes down to the idea that there's no realistic way to make individual farmers accountable for the pollution they produce.

The current waiver programs, particularly in the Central Valley, represent a small step forward. They identify the problems. Also, it's important, particularly in the Central Valley, to be able to consolidate the dischargers into a group. That way, the regulatory authorities can communicate with a representative from a group of farmers, instead of

thousands of individual farmers. A practical avenue of communication with the farmers gives regulators an important frame of reference.

The waiver programs don't decrease pollution. We're setting up a framework for dealing with this, but we're not really getting anywhere for the environment. We need to keep that in mind. Plus, time is an issue in the delta, as elsewhere.

We have this waiver program. Now we have to figure out what to do next. This is my particular perspective. I'm not a fan of BMPs. I think we have the good, the bad and the ugly here. The bad is just saying the only solutions is BMPs. If you have mandatory BMPs, they're either inefficient from the farmer's perspective or ineffective from an environmental perspective. Despite all the research, you never know what will happen until you apply them. The ugly would be individual Waste Discharge Requirement (WDRs). We don't have a government big enough to handle that, nor would we want one. So, let's take the good, and make hybrids. Let's start thinking about other ways to address the problem and some of the components of these hybrids that we might create. How about having WDRs for groups of farmers?

I'd also like to start looking at performance-based requirements. With BMPs, the regulatory system tells farmers what they need to do. For example, irrigation regulations might require farmers to cut down half-mile furrows to quarter-mile furrows because it does a better job of conserving water. Alternatively, regulations might require them to switch to drip irrigation from furrow irrigation. In contrast, a performance-based system would limit the pounds of pollutants that they can discharge, regardless of how they do it or what kinds of management practices they use.

The third thing I'd like for people to start thinking about is economic incentives. Farmers' economic interest should encourage them to reduce pollution. If reducing pollution makes money for you, you're going to reduce pollution. If there are good ways to apply economic incentives within the framework of agricultural pollution regulation, then I support it. That was our thought process at Environmental Defense when we encountered the Kesterson disaster.[21] The Kesterson disaster was a very serious problem in the Central Valley with selenium discharges that caused deformities in baby birds. The birds were called thalidomide ducks. It was a huge disaster.

We started monitoring and keeping records in 1986. We went through a period of looking at voluntary BMPs, reporting, monitoring, and basically doing the same things that the waste discharge waivers are doing right now in the Central Valley. We got nowhere with voluntary

21. The Kesterson disaster occurred in 1983 at the Kesterson National Wildlife Refuge.

BMPs. The discharges merely fluctuated with the weather. To protect the river, we needed to get down to a level of about 3000 pounds of discharge. We weren't anywhere near that level. In fact, the levels were not even going in the right direction. So we decided to rethink the problem. We wanted to get out of the stalemate by being creative in addressing the problem.

AUDIENCE MEMBER: Can you tell us how you measured the discharge? How did you get a pound figure?

YOUNG: The individual farmers put their drainage into drainage ditches. The drainage ditches are consolidated into canals or pipes at the district level. The district discharges all wend their way into one or more major drainage canals, and then into the river. Those things can be measured.

In rethinking the problem, we concluded this wasn't nonpoint source pollution. Instead, there were a plethora of point sources. Second, we knew that some groundwork had been laid. These farmers were already organized into irrigation districts. These districts already had abundant legal authority to regulate the water that came in and drainage that went out. Third, we knew from other scientific and regulatory studies that these drainage discharges could be controlled. There were things that the farmers could do to control them. We were asking them to do something that was difficult, but not impossible. So with this in mind, we decided to set up a regulatory system, one of the hybrids that actually mirrored the drainage conveyance system. In the proposed regulatory system we had the regulators standing at the river regulating what came out of the river. The regulators would give one permit per regional drainage district. That regional drainage district, a consortium of several districts, could then decide among the districts how it was allocated. The permit allowed the regional district to put a predetermined amount of selenium into the river. The districts had to divide the allocation among themselves and figure out who could discharge what. Once the regional district had its allocation, it could figure out how to meet it. It would turn to the farmers and the districts to decide if they wanted to use BMPs, use input pricing, or use other kinds of creative things. But the difference here was that the districts were not regulators. The districts were the farmers. The farmers controls the district government. So we were putting them in a position where they would have to argue amongst themselves to come up with a plan.

I like the way this system manages the institutional relationships between the regulator and the single regional drainage district, and the relationships between the districts and the farmers. I like that part because there's so much local control. The other part I like is tradable discharge permits among the districts. Once the districts get their allocations, they can trade their allocations back and forth. If one district

can't quite make its allocation, it can buy an allocation from another district who has the capacity to go lower than its own limit. The districts can turn around and use input pricing. They can use tiered water pricing to send an economic signal to the farmers by having them pay less if they use less water, but it is a benefit to the district as well because its creates less pollution. That was established scientifically. The districts can choose to use water pricing as a mechanism to get their farmers to decrease the amount of pollution they produce.

AUDIENCE MEMBER: The system you've discussed regulates the beginning of the chain: the actual farmer's use. This is probably the best way to take care of the issue. But it seems to be a very difficult process to regulate that many people at one time. You talked about this series of interconnecting canals and pipes where there's one canal that's taking the materials for water from one district. Can you treat that end of the source? Is it feasible to build a treatment facility that can take that flow of water with agricultural pollution and runoff and treat it?

YOUNG: The question is: Given this set up of drainage ditches, can you intercept the drainage at some point, either at the end of the pipe or further up towards the farmers and put a treatment plant in place? You can. It's very expensive. You get a lot of stuff of which you must dispose.

When you use these economic instruments you actually maximize efficiency across the region. We did an economic study to compare what it would cost the region to meet certain water quality standards using either BMPs or the economic incentive system that I've proposed here. Economic incentives won for any kind of pollution limits. I've been talking about all this in theory, so the question was if it could be put into place on the ground. That was the question that we were faced with in 1986. The short answer is yes, from my perspective. We actually enacted something very similar to this in the district that contains David Farms. There is a big trend downward there. They're moving towards meeting the water quality standard. The picture is a lot more complicated when you look at it on a monthly basis, which is the way the farmers do. But the answer is basically the same. The discharge is pretty much always underneath the line that they have to stay under. When we add it up on annual basis they've done their job.

I like the fact that the environment is protected. The quantitative limits on selenium discharges inform us about what goes into the river and ensure that the river will be protected. The regulators like the fact that the districts and the farmers are accountable for meeting the discharge limits. This system creates a cascading chain of legal and administrative authority that reaches all the way down to the individual farmers and makes them accountable for the pollution they produce. The regulators don't have to talk to the farmers individually about it because they only have to issue one permit. The regulators have been pleased

with the results so far. Farmers appreciate that they can design their own methods of complying with the discharge limits. Within the district they can decide what to do. They can decide what kinds of BMPs to enforce if that's the way they want to do it. They can also fashion their own economic incentives. Local control is important to getting buy in.

The next question is: Can we ever do it again anywhere else? Nobody has tried, but I'm hopeful that the system that we're setting up in California might actually get there. What do we need to have in place in order to do this again? Number one, we've got to have the political will. Some folks are doing a good job trying to help create the political will to get the regulators to focus and do something about this issue. You need the legal and institutional mechanisms to regulate the districts all the way down to the farmer. At the top we're in good shape because we've got the laws. At the bottom, the waiver program is helping us establish these farmer groups. We need discharge targets. We're going to have those with the Total Maximum Daily Loads (TMDLs) that come out of the 303(d) process. That's a slam dunk. In order to use performance-based systems, you also need to have feasible monitoring programs. You must be able to measure what comes off the farm, the districts, or wherever measurements are taken.

Conventional wisdom is that you can't monitor or measure the source of the pollution. That's why it is called a nonpoint source. However, conventional wisdom is not always correct. Sometimes you can look at the drainage networks of sumps and canals and figure out what is coming from where. Other times you can measure input surrogates for the output.

My message for today is "just do it." Let's take a new look at agricultural pollution control, think about new systems that we can create that make pollution control practical on the ground, and see if we can go for it.

AUDIENCE MEMBER: I just have one quick point. You were talking about economic incentives. But when the farmers were about to be evicted from where they normally discharged, a nearby federal canal solved their problem. You could use the canal as long as you agreed to other things.

YOUNG: Yes, we did have a guillotine hanging over their heads that I did not mention.

CORY: That was an economic incentive though. It was just a very onerous economic incentive that said you're going to lose all drainage and the ability to drain if you don't comply.

My experience with water quality regulations as a grower and attorney started in the selenium program. At that time, I turned to Terry's vision of how to regulate agriculture. It's known as the Grass and

Bypass Project. It's how we dealt with selenium control on the west side of San Joaquin Valley. I basically agree with what Terry said about having specific, understandable, and somewhat achievable requirements that farmers can try to meet. Also, giving the growers control over how to comply and meet the requirements has really worked well in the Grass and Bypass Model. The Project involves about 100,000 acres and targets selenium as the main constituent, as well as salinity. The group of growers there includes terrible corporate farmers as well as family farms. In my experience, there are good corporate farmers and there are good family farmers. Then, there are those who don't want to do what needs to be done. This group includes corporate and family farmers. With others, it's a little bit harder to get them to do what you want.

We've actually been discharging and farming under waste discharge requirements and the selenium control program for over nine years. We've learned a lot. The first couple of years were very wet. This made it difficult to control our discharges, and we didn't really understand what we were doing. We didn't have the facilities to deal with our drain water like we do today. In those first two years, we violated our load targets. One of them was one of the wettest years in fifty or a hundred years. The second year of regulation, 1998, was an incredibly wet El Niño year. I actually boated through my sugar beet fields. That is not the kind of thing you want to do as a farmer.

But we've learned a lot over the last decade. We have a lot of challenges facing us. We started with an average discharge limit of 6660 pounds, and we have to get down to a little over 3000 pounds in a wet year and about 1000 pounds in critically dry years. But the model can be taken over and put into the larger agricultural context. We're trying to do that on the west side. I see the model as having a regional organizational structure where the growers can get together. We formed a joint powers authority. We have regular, noticed, open public meetings where we get together for the Bypass Project or the new conditional waiver program. We gather irrigation district representatives and discuss how to comply with the requirements. We create the structure so that the leaders in the community understand what's expected and communicate the waste discharge requirements to the growers.

Neither Terry Young nor the regional board was telling us what we needed to do. Our group was looking at this and trying to figure out what to do to reduce selenium discharges from our region. We would try one method based on input from agencies and environmental groups. If it worked, we did more of it. If it didn't, we wouldn't. We have one drainage outlet that is easy to measure. So it is very easy to apply this system. But, since the conditional waiver, other environmental interests are forcing us into this regulatory world. On the west side, we are trying to apply this model on a larger-scale basis. We have about 500,000 acres

on our conditional waiver program. This program has the same joint powers authority, district representatives, and individual growers who grow if they are not in a particular district. We meet regularly, discuss what's expected of us, and get a budget together. The first year, the coalition had a budget of well over one million dollars to implement monitoring.

The way Linda talks about the different water quality issues, you'd think that the waters are on fire. We certainly could disagree about how bad it is. Nonetheless, there certainly are problems. I don't want to underestimate that. I'm not saying that pesticides are good things. We have to address the agriculture issues. But we have to understand what they really are, and get the growers to understand them. So we've started to implement the monitoring program, get results, and get grower meetings together. We have about nineteen monitoring sites within our watershed, so we have a particular event on one site. We get the growers, the pesticide use advisors, their applicators, and others together in the watershed. We tell them we've got a problem and need to figure out how to solve it. Most of the growers have never been told that this is an issue. Still, they have ideas on how to do it. It is going to take time to get these people to understand and start to address it. On the west side we're already addressing these issues and trying to educate the growers to change their practices.

I think this model can be applied to the larger agricultural context. It is going to be a little more difficult because we have multiple discharge points. It's hard to accept that it's not going to be solved overnight. We've got to keep the pressure on growers, because growers are not going to do this voluntarily. I don't believe in voluntary BMPs. You need to have achievable and realistic goals. If you ask growers to do too much, they're going to fail. If they fail, the whole thing falls apart. We can meet these goals if we can come up with rational and achievable targets that we can articulate to the leaders in agriculture and to the growers, give clear directives, and give flexibility to the growers to adapt to and implement measures.

There is one last pitch I want to throw out there in terms of the economies of farming and what I face as a grower. We're dealing with these environmental externalities in California above and beyond any other state in the union or country in the world. We're being forced into a global marketplace where we're competing with China, Australia, and all the world to sell our commodities. It's hard to compete in that world. If we don't get some assistance or some mechanism to allow us to absorb the external costs that the rest of the world is just putting into their environment, a lot of these growers will go out of business. We will get more corporate farms with less accountability and less societal appeal. A lot of these externalities will get shipped to countries like China and third

world countries who have no environmental regulation. We need to think about global environmental justice and realize that if we're going to be in a global economy, there are environmental externality costs for growers. There needs to be some way to account for that so we can stay in the market.

YOUNG: Let's take as many questions as we can.

AUDIENCE MEMBER: Could you say something about where the petrochemical industry fits into this? If you're a farmer, you buy fertilizers and pesticides from an industry that makes a huge profit.

CORY: This is frustrating for me, especially when you look at the size of my budget spent on chemicals. It is difficult to get weaned off of the chemical when you want to produce the yields. The petrochemical industries are starting to realize that they might lose their market if they don't figure out how to change their labels. They are just starting to get involved, but they are behind the scenes.

SHEEHAN: From the discharge perspective, there's an interesting dichotomy. For example, one the one hand petrochemical facilities in San Francisco Bay ratchet down their selenium discharges. On the other hand, chemical discharges still flow into the Bay. A lot of input comes from the delta from practices that are not as well-regulated. That's not just an irrigated agricultural thing. The pollutants also come from storm water and other sources. There's this balance that needs to be addressed because right now it's so easy to ratchet down. Not that I feel sorry for Chevron. But there needs to be more equity in the process to make sure we're addressing the "low-hanging fruit."

CORY: I think the chemical companies are getting nervous. When they look at prohibitions of discharge as a possible outcome of some of these conditional waiver programs, they realize they could lose their market altogether. That's a big loss of money to them. I think that's a goal of some conditional waiver programs.

AUDIENCE MEMBER: I would like to advocate for farmers by saying that they're actually very sophisticated, especially in the Central Valley. I've worked with a number of them. They are incredibly sophisticated, wear a number of hats, and always impress me with their intellectual awareness. With that said, I'd like to also mention that we've had this knowledge for over twenty-five years. So, what have we been doing for twenty-five years if we haven't been educating? Are we at that stage again where we're just starting over?

Another thing is that I've worked with the voluntary BMPs in the 1980s with the Chesapeake Bay Initiative. Of course, it is non-irrigated agriculture in the Mid-Atlantic states, but the voluntary BMPs were very effective. One thing I noticed coming to California was that the agricultural community and the environmental community were so much

more diametrically opposed here. If the mandates are to be effective, we need the two communities to work together, as opposed to being polarized. We need to come together and build coalitions among those communities. For that reason, I'm very happy to see you together here. I think this is one of the most effective ways to get to the point where we all want to be. Another thing is that the selenium program is a wonderful example. But the westlands is a very unique example. Historically, we knew it was high in selenium. It sits in a rain shadow. The farmers from the Central Valley bought the land at low prices and petitioned the federal government to come in because the state government would not provide any water. So the feds came in and provided them with water. Another concern is that selenium doesn't go away.

YOUNG: Let me stand up for David for a moment. There are several parts of the west side that have selenium problems. David is part of the grasslands area and that is a subject of this program that we discussed. This area is closer to the river and didn't historically have quite the same problems that westlands did. Westlands has not been part of this program. Westlands is the group that has been litigating on a separate track. It is very interesting that the grasslands area has been on one track of trying to solve the problem and the westlands area has been on the litigation track instead. I'll leave it to other people to figure out which works better. I know which one works better for me.

CORY: When I talked about sophistication, I was really talking about regulatory sophistication. I wasn't badmouthing farmers and saying that they are stupid. That isn't what I meant. I was dealing with regulatory sophistication as opposed to typical problems.

AUDIENCE MEMBER: You refer to pollution water quality trading. How much experience has there been and are there really successful examples of that?

YOUNG: I'm glad you asked that. This trading program that David and his colleagues instituted was the first one in the nation between and among nonpoint sources. I think it is still the only one. There has been some experience trading between nonpoint sources and point sources. But for an idea that is so attractive, there is precious little on-the-ground experience. I think that has to do with the institutional barriers that arise when people do not know how to go about doing it.

SHEEHAN: I might add a slight caveat to that. It's not entirely attractive to some groups. Lately the focus has been on trading bio-accumulative substances. That is something that definitely raises environmental justice issues. Trading has been used in an air context, but air and water can be quite different. I am more hesitant on the trading perspective. There are some instances where it might work. Loads might be developed for an impaired water body. But in a larger context, I'm

still a bit suspicious. I've gone through a couple cycles of this.

YOUNG: You do have to write rules correctly.

AUDIENCE MEMBER: You both talked about the role of economic incentives and making an economically feasible program for farmers. I was wondering if you could talk about the conservation programs in the farm bill? Do those programs address any of those issues? Do you see them as a possible tool that might be more effective than the other legal tools you've discussed?

YOUNG: From my perspective, they are a lot better in theory than they are in practice.

CORY: There are equipment funds that you can implement on farm irrigation efficiencies. Some of the growers do use those. But, they are fairly bureaucratic and thus difficult to use with large scale problems, like what we're doing on the west side. We're trying to come up with ninety-two million dollars to implement the final components of this Grasslands Bypass Project. This involves taking all of our drain water out of the drain and having an in-valley drainage solution.

SHEEHAN: To follow up on that, one of the issues that I've had with some of the federal programs is that you tend to give them money. But there are no requirements to tell people what you did with the money and how it worked. How the money is used often remains secret. That's where the California bonds have tended to be a little more open. Not as open as I'd like, but certainly more open than the federal monies. Bonds floating around in the legislature right now do not have a big water quality component. That's certainly something I am trying to address.